

REMARKS

Summary of the Office Action

Claims 1 and 7-10 stand rejected under 35 U.S.C. § 102(e) as being anticipated by U.S.

Patent No. 6,542,211 to Okada et al.

Claims 1 and 7-9 stand rejected under 35 U.S.C. § 102(e) as being anticipated by U.S.

Patent No. 6,221,444 to Okada et al.

Claims 2-4 and 11-13 stand objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Summary of the Response to the Office Action

Accordingly, claims 1-13 are presently pending for consideration.

All Claims Comply with 35 U.S.C. § 102(e)

Claims 1 and 7-10 stand rejected under 35 U.S.C. § 102(e) as being anticipated by U.S. Patent No. 6,542,211 to Okada et al. (hereinafter Okada et al. '211). This rejection is traversed because Okada et al. '211 fails to describe or suggest all of the features recited in independent claims 1 and 7. For example, independent claims 1 and 7 recite, amongst other features, "applying a first voltage corresponding to a real data during a data voltage applying frame" and "applying a second voltage for maintaining a bend state and preventing the liquid crystal from

restoring to a splay state during a maintenance voltage applying frame, wherein the real one frame for driving the liquid crystal includes the data voltage applying frame and the maintenance voltage applying frame subsequent to the data voltage applying frame (or wherein the data voltage applying frame and the maintenance voltage applying frame are a data applying time and a maintenance time in the real one frame, respectively).”

The Office Action asserts that Okada et al. ‘211 describes the subject matter of claims 1 and 7 in col. 7, lines 9-25, col. 8, lines 10-15, and col. 15, lines 28-58 of U.S. Patent No. 6,542,221. Applicant respectfully submits that these portions of Okada et al. ‘211 do not describe all of the features recited in independent claims 1 and 7. More specifically, col. 7, lines 22-25 in Okada et al. ‘211 states that “The application of a holding voltage is necessary for retaining the bend alignment. At this time, the liquid crystal in the hybrid alignment region 12 is placed in hybrid A alignment which can be continuously changed into or joined with twist alignment (FIG. 9B3).” Apparently, The Office Action asserts that the holding voltage of Okada et al. ‘211 is the same as the second voltage (voltage V_m) in the present invention. Applicant respectfully submits that the holding voltage in Okada et al. ‘211 is applied so that hybrid alignment region 12 is placed in hybrid A alignment. Thus, as explained at col. 7, lines 31-35 of Okada et al. ‘211, “the liquid crystal of bend alignment in the region 13 shown in FIG. 9B3 is stabilized in twist alignment state 14 (before returning to the splay alignment) as shown in FIG. 9B4, when holding voltage is removed because it is surrounded by the liquid crystal in hybrid A alignment in the hybrid region 12.”

Applicant respectfully submits that the holding voltage described in Okada et al. '211 is an initiating voltage for starting the device. For example, in Okada et al. '211 goes on to state in col. 8, lines 10-15 that the "hybrid alignment region retains the hybrid A alignment which can be continuously transformed into twist alignment, the splay alignment can be again transformed into twist alignment owing to the presence of the hybrid A alignment at a voltage substantially lower than the initially required bending voltage." Further, col. 15, lines 28-53 of Okada et al. '211 state that "The liquid crystal device was driven by a set of drive signal voltage waveforms shown in FIG. 16 set to $V_{sub.+g} = 10$ volts, $V_{sub.-g} = -10$ volts, $\Delta T = 16 \mu\text{sec}$, data signal voltages of ± 2.0 volts to ± 6.0 volts for picture display, and a common electrode potential set to a reference potential. A retardation difference of 150 nm was caused between application of 2.0 volts and application of 6.0 volts, so that the optical compensation was performed by using a phase compensation plate 62a having a retardation of 250 nm as shown in FIG. 13A so as to display black at ± 2.0 volts (normally black display). The response time was 1.0 msec from the state at a voltage of 2.0 volts to the state at a voltage of 6.0 volts, and the response time from 6.0 volts to 200 volts was 10 msec. According to the liquid crystal device of this example, it was possible to cause a switching between twist and bend alignments by application of 0 volt to 4.0 volts for display."

Although Okada et al. '211 discloses the application of a holding voltage, which sets up the device for further operation, there is no description or suggestion in Okada et al. '211 of a data voltage followed by a maintenance voltage, or data voltage and maintenance voltage in one

frame. Applicant respectfully submits that the core subject matter of Okada et al. '211 is to initially use a voltage for bend alignment to reduce a subsequent bending voltage. This is achieved by liquid crystal placed on a uniform alignment region that is surrounded by a liquid crystal region in a hybrid state or a homeotropic alignment state, stably maintained under the twist alignment state, which does not have an electric field and can be continuously changed into twist alignment.

Accordingly, Applicants respectfully assert that the 35 U.S.C. § 102(e) rejection of claims 1 and 7-10 is improper because Okada et al. '211 does not describe or suggest all of the features recited in independent claims 1 and 7. Moreover, dependent claims 8, 9 and 10 are allowable for the same reasons as discussed above because of their dependency on claim 7 and for the additional features that they recite. Thus, Applicants respectfully request that the 35 U.S.C. § 102(e) rejection of claims 1, 7, 8, 9 and 10 be withdrawn.

Claims 1 and 7-9 stand rejected under 35 U.S.C. § 102(e) as being anticipated by U.S. Patent No. 6,221,444 to Okada et al. (hereinafter Okada et al. '444). This rejection is traversed because Okada et al. '444 fails to describe or suggest all of the features recited in independent claims 1 and 7. For example, independent claim 1 recites, amongst other features, "the data voltage applying frame and the maintenance voltage applying frame are determined by a period of a signal applying to a gate of the liquid crystal display." Further, independent claim 7, recites, amongst other features, "the data voltage applying frame and the maintenance voltage applying

frame are a data applying time and a maintenance time in the real one frame, respectively.”

Applicant respectfully submits that Okada et al. ‘444 does not describe a data voltage applying frame and a maintenance voltage applying frame determined by a period of a signal applying to a gate of the liquid crystal display. Further, Applicant respectfully submits that Okada et al. ‘444 does not describe a data voltage applying frame and a maintenance voltage applying frame are a data applying time and a maintenance time in the real one frame, respectively. In contrast to the present invention, Okada et al. ‘444 describes at col. 3, line 26-27 that “it is necessary to apply a holding voltage for retaining bend alignment **during** (emphasis added) drive.” In other words, Okada et al. ‘444 applies a holding voltage for retaining bend alignment **during** the application of a drive voltage, which is unlike the data voltage applying frame and maintenance voltage applying frame that are distinct in the present invention, as recited in independent claims 1 and 7.

Accordingly, Applicant respectfully asserts that the 35 U.S.C. § 102(e) rejection of claims 1 and 7-9 is improper because Okada et al. ‘444 does not describe or suggest all of the features recited in independent claims 1 and 7. Moreover, dependent claims 8 and 9 are allowable for the same reasons as discussed above because of their dependency on claim 7 and for the additional features that they recite. Thus, Applicant respectfully requests that the 35 U.S.C. § 102(e) rejection of claims 1, 7, 8 and 9 be withdrawn.

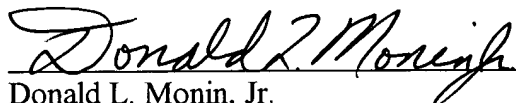
CONCLUSION

In view of the foregoing, Applicant respectfully requests reconsideration and the timely allowance of the pending claims. Should the Examiner feel that there are any issues outstanding after consideration of the response, the Examiner is invited to contact the Applicant's undersigned representative to expedite prosecution.

If there are any other fees due in connection with the filing of this response, please charge the fees to our Deposit Account No. 50-0310. If a fee is required for an extension of time under 37 C.F.R. 1.136 not accounted for above, such an extension is requested and the fee should also be charged to our Deposit Account.

Respectfully submitted,

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